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EMG-MB

The Files - Contract NO-107, Task Order 8 25 November 1958

25X1A9a [redacted]

25X1A

Trip Report - [redacted]

25X1A5a1 [redacted] facilities of [redacted]er 1958, to monitor progress on Contract NO-107, Task Order 8. Present at the discussions were:

25X1A5a1 [redacted]

25X1A9a [redacted] - CC-E/R+D-EP

25X1A

2. This task is progressing smoothly. The contractor has developed two measuring devices which will greatly aid in the fabrication of the [redacted] thermoelectric generator, designated [redacted] One of these devices is a resistivity meter, which enables the contractor to take a bar of zinc-antimonide or lead-telluride and measure the resistivity along the entire length of the bar. This will permit the contractor to select only the most desirable pieces of material to be used in the thermoelements. The other measuring device permits the contractor to measure the contact resistance of each thermoelement after these elements have been bonded to the steel plates that support the ingots of zinc-antimonide or lead-telluride. By measuring the contact resistance of each thermoelement and keeping this resistance below 10% of the total resistance of the individual elements, the performance of the BC-11X will be greatly increased.

25X1C

25X1C

3. The last model of the [redacted] generator, which used zinc-antimonide and constantan as the thermoelements, failed after about 600 hours of operation. The water evaporated from the pan thus causing the cold side of the generator to overheat and destroy the insulation inside the generator. On this model, varnish was used to insulate the cold side and mica was used on the hot side. In the BC-11X, the contractor will use anodized aluminum on both the hot and cold side for insulation. This material has been tested satisfactorily to 400°C and should serve well as an insulator. The BC-11X is being designed to operate at 350°C, so this insulating material will make the generator somewhat foolproof, in that it cannot be damaged by overheating should the water supply be exhausted.

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25X1A5a1

4. Under Task Order 6, the [redacted] made some investigations on water-activated batteries and came up with a silver-chloride magnesium water-activated battery. In a discussion 25X1A5a1 with [redacted] it was concluded that such a battery could be made to have an output of 12 volts for one hour with currents up to 3 amperes. Such a battery would occupy approximately 6 x 2½ x 1½ inches including magnesium and silver-chloride plates, and separators. The plates would be inserted in the case just prior to usage and the battery would then be activated with water or urine. After the battery has been used the plates, due to a chemical reaction, become very brittle and can be easily disposed of. The plastic case and separators may be saved and used again with an additional supply of plates. Therefore, this source of power could be called a chemically rechargeable water-activated battery.

[redacted] 25X1A9a

OC-E/R+D-EP/CWS:bc (25 November 1958)
cc: R+D Subject File
Monthly Report
R+D Lab
OC-T
R+D Chrono
EP Chrono

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